DOCUMENT RESUME

ED 125 254 FL 007 481

AUTHOR Hamayan, Else; And Others
TITLE Elicited Imitation in Second Language Learners. Working Papers on Bilingualism, No. 6.
INSTITUTION Ontario Inst. for Studies in Education, Toronto. Bilingual Education Project.
PUB DATE May 75
NOTE 25p.; For related documents, see FL 007 480-484
AVAILABLE FROM Bilingual Education Project, The Ontario Institute for Studies in Education, 252 Bloor St. West, Toronto, Ontario, Canada M5S 1V6 (as long as supply lasts)

EDRS PRICE MF-$0.83 HC-$1.67 Plus Postage.
DESCRIPTORS Adults; Children; *English (Second Language); *Imitation; Language Ability; *Language Development; Language Instruction; Language Learning Levels; *Language Research; *Language Skills; Learning Characteristics; Linguistic Difficulty (Inherent); *Second Language Learning; Second Languages

ABSTRACT

Three groups of subjects were tested in an elicited imitation study. These were 8-year-old, 11-year-old and adult native speakers of Arabic who were learning English as a second language. The subjects were asked to repeat sentences of seven different grammatical structure types. Previous research with 4-year-old native speakers of English (Smith, 1973) has found that three of the structures were easy to repeat (Type A structures) while four were difficult to repeat (Type B structures). In the present study, a similar difference in the repeatability of A and B structures was found for the youngest subjects, but there was no such difference for the adults and only a moderate difference for the intermediate group. The pattern of results suggested that this was not a function of differences in the subjects' English-language backgrounds, but represents a developmental difference in the ability of second-language learners to repeat certain grammatical structures. The theoretical reasons for the variability in repetition difficulty for the different structure types were considered. (Author)

****
* Documents acquired by ERIC include many informal unpublished *
* materials not available from other sources. ERIC makes every effort *
* to obtain the best copy available. Nevertheless, items of marginal *
* reproducibility are often encountered and this affects the quality *
* of the microfiche and hardcopy reproductions ERIC makes available *
* via the ERIC Document Reproduction Service (EDRS). EDRS is not *
* responsible for the quality of the original document. Reproductions *
* supplied by EDRS are the best that can be made from the original. *
****

ED125254

Elicited Imitation in Second Language Learners

Else Hamayan and Joel Saegert

The American University of Beirut, Lebanon

Paul Larudee

Haigazian College, Beirut, Lebanon

Abstract

Three groups of subjects were tested in an elicited imitation study. These were 8-year-old, 11-year-old and adult native speakers of Arabic who were learning English as a second language. The subjects were asked to repeat sentences of seven different grammatical structure types. Previous research with 4-year-old native speakers of English (Smith, 1973) has found that three of the structures were easy to repeat (Type A structures) while four were difficult to repeat (Type B structures). In the present study, a similar difference in the repeatability of A and B structures was found for the youngest subjects, but there was no such difference for the adults and only a moderate difference for the intermediate group. The pattern of results suggested that this was not a function of differences in the subjects' English-language backgrounds, but represents a developmental difference in the ability of second-language learners to repeat certain grammatical structures. The theoretical reasons for the variability in repetition difficulty for the different structure types were considered.

FL007481

U S DEPARTMENT OF HEALTH, EDUCATION & WELFARE NATIONAL INSTITUTE OF EDUCATION

THIS DOCUMENT HAS BEEN REPRODUCED EXACTLY AS RECEIVED FROM THE PERSON OR ORGANIZATION ORIGINATING IT. POINTS OF VIEW OR OPINIONS STATED DO NOT NECESSARILY REPRESENT OFFICIAL NATIONAL INSTITUTE OF EDUCATION POSITION OR POLICY

"PERMISSION TO REPRODUCE THIS COPYRIGHTED MATERIAL HAS BEEN GRANTED BY OISE, Bilingual Education Project TO ERIC AND ORGANIZATIONS OPERATING UNDER AGREEMENTS WITH THE NATIONAL INSTITUTE OF EDUCATION. FURTHER REPRODUCTION OUTSIDE THE ERIC SYSTEM REQUIRES PERMISSION OF THE COPYRIGHT OWNER."

Elicited Imitation in Second Language Learners

The method of "elicited imitation" has recently been used as a convenient way to monitor children's linguistic competence (Slobin & Welsh, 1973; Smith, 1973). In this procedure, subjects are asked to repeat sentences which are presumed to be beyond the capacity of their immediate memory span. It is assumed that in order to remember and successfully imitate such sentences, the subjects must organize them in some manner; that is, since the sentences cannot simply be parroted from short-term memory, the subjects must encode them through the use of some semantic, syntactic or other mnemonic device. The use of the elicited imitation technique has been extensively reviewed by Swain, Dumas and Naiman (1973).

Smith (1973) has used elicited imitation to establish the relative difficulty of various syntactic structure for four-year-old native speakers of English. In her study, both grammatical and ungrammatical versions of sentences representing seven different linguistic structures were presented for repetition by the subjects. One dependent variable of interest was simply the ability of the children to correctly imitate the sentences. A second response variable was their tendency to "normalize" ungrammatical sentences; that is, the investigator was interested in the number of times a child's repetition of an ungrammatical sentence was cast in the form of a correct grammatical structure. A third performance index was also considered, that of the occurrence of the various structures in the children's spontaneous speech.

On the basis of these measures, Smith divided the seven structures into two empirical categories. The first of these (labeled "A structures" by

Smith) were those sentences which were easily imitated, which tended to be normalized and which had been observed in spontaneous speech. These included conjunction, objective complement and number agreement structures. The second category (labeled "B structures") were those sentences which were not easily imitated, tended not to be normalized and appeared rarely in spontaneous speech. These included double adjective, relative clause, verb auxiliary and conjunction inversion structures. Smith discussed the distinction between A and B structures on the basis of several possible contributors to difficulty of sentence imitation. These will be reviewed in the discussion section.

Recently, Naiman (1974) has introduced the method of elicited imitation to the study of second language (L2) learners. On the basis of his results, he concluded that performance on supra-memory span imitation tasks does indeed reflect the subjects' productive competence. The present study extended the procedure used by Smith (1973) and Naiman (1973) to L2 learners of various age levels. One purpose in doing this was to see if Smith's empirical categories could be replicated with subjects learning English as a second language. Dulay and Burt (1972) have argued that for children below the age of puberty (and perhaps for adults as well), L1 and L2 learning processes are identical. If this is true, a clear prediction for the present study is that the same relative degrees of difficulty as was found by Smith should be observed for elicited imitation in L2 learners.

The study was conducted using native Arabic-speaking English L2 learners at the American University of Beirut and at English-medium elementary and secondary schools in Beirut, Lebanon. The students of these institutions provided a large population of L2 learners who varied widely in age

and instructional history, but who shared a common first language. A second purpose of the present study was to look at elicited imitations for L2 learners across several age levels. It has been suggested that language acquisition processes may change dramatically as children develop (e.g., Lenneberg, 1967; Krashen, 1973). It was therefore our interest to select subjects who were learning L2 at various age levels to see if differences in age would be associated with differences in elicited imitation performance.

Two methodological difficulties were encountered in conducting the study. One was in finding a population of testable L2 learners who were comparable in age level to the children in Smith's study. We found that the youngest children available who had enough English proficiency to be tested were around eight years old. Thus, these children were somewhat older than those used by Smith. A second problem concerned the comparison of elicited imitation across age levels. We found, of course, that most of the older subjects had studied English for longer periods of time. There was, therefore, the possibility that the effects of age could be confounded with amount of previous instruction. However, we collected repetition data and background histories from several groups of subjects to see what conclusions could be drawn from the regularities in their imitation abilities.

Method

The procedure used for the elicited imitation task was closely modeled after that of Smith (1973) with a few notable exceptions. Pilot work with L2 learners suggested that the sentences used by Smith were relatively short and were easily repeated; in fact, it appeared at times that they might be

considered to be within the range of immediate memory. To help insure that the subjects were not producing their responses from short-term memory, the memory load was increased by adding a short explicative sentence to each target sentence. For example, the subjects were asked to repeat the following:

The boy who was running fell down. He broke his arm.

Only the initial sentence was considered in the scoring for correct repetition. The explicative sentences were chosen to be as nearly equal in length as possible.

To further ensure that the subjects were indeed comprehending the sentences, a picture was presented along with each imitation test. These consisted of simple line drawings which illustrated the action described by each sentence. Thus, compared to Smith's study, slightly longer material was presented for repetition and the material was accompanied by pictures.

Seven sentence structures were selected for presentation. (See table 1

Insert Table 1 about here

---

for examples.) Of these, six were used by Smith. These included the three A structures, (conjunction, complement and number constructions) and three B structures, (relative clause, verb auxiliary and adjective constructions; Smith's structure of conjunction inversion was not used). In addition, a seventh structure was added, that of negative wh-questions. This sentence type has been found by Klima and Bellugi (1973) and Miller and Ervin-Tripp (1973) to be extremely difficult for young native speakers and was predicted to be difficult to imitate, as was found for the B structures in Smith's study.

Half of the stimulus sentences of each structural type were grammatically correct while the other half contained grammatical errors. The errors were constructed on the basis of a previous error analysis study of the Arabic-speaking population at the American University (Scott and Tucker, 1973). With the exception of the adjective construction, the errors included were judged not to be incompatible with Arabic from the standpoint of English-Arabic contrastive analysis. The vocabulary items used in the sentences were chosen from textbooks used by the youngest subjects in the study; the target sentences averaged about 9 syllables in length while the explicative sentences were about 5 syllables.

Procedure. Four sentences, two grammatical and two ungrammatical, of each of the seven structure types were tape recorded by a fluent English L_2 speaker. The sentences were presented in random order with the restriction that no two sentences of the same structure type occurred contiguously. The subjects were tested individually and were instructed to imitate the sentences exactly as they heard them on the tape recorder. The experimenter stopped the stimulus recording after each sentence was presented and the subjects' responses were taped on a second recorder. These were later transcribed for scoring. Two practice sentences given at the beginning of the session were not scored.

Subjects. Three groups of twenty subjects each were chosen. The groups were selected to reflect differences in age levels. Biographical data were collected following testing in order to describe the language backgrounds of the subjects as carefully as possible. The groups were as follows:

Group 1 came from the third grade of a Lebanese English-language private school. Their ages ranged from 7 yrs, 9 mos to 9 yrs, 8 mos with a mean of

8 yrs, 8 mos. These children were all native speakers of Arabic and had started learning English in Kindergarten. A few had been exposed to French in nursery school but had little knowledge of that language. The children came from homes where one or both parents spoke English as a second language although in all but two cases, Arabic was the language spoken in the home. In the other two cases, both English and Arabic were spoken at home.

Group 2 subjects were sixth graders whose ages ranged from 10 yrs, 7 mos to 12 yrs, 8 mos with a mean of 11 yrs, 9 mos. These subjects were also native Arabic speakers with parents who spoke English as a second language. Again, Arabic was the language spoken in the home. Except for two subjects who started later, they had all begun English study in Kindergarten. The mean number of years they had studied English was 6.5. Most of these subjects (75%) were studying French as a third language but were at a low level of proficiency in that language.

Group 3 subjects were selected from the intensive English orientation program at the American University of Beirut. These students had not qualified for regular admission to the University because of their low English proficiency and had been retained in pre-University English classes for a second semester. They had all completed their high school education in Arabic-medium high schools and had studied English as a second language for an average of 7.6 years. Except for two students who used both Persian and Arabic with their parents, the language spoken in the home was exclusively Arabic. All subjects had lived in Arabic-speaking countries all their lives. Relatively few (43%) had parents who knew English as a second language.

Thus, the subjects had studied English for about 4, 6 and 7 years respectively and were 8-year-olds, 11-year-olds and college adults.

Scoring. Since a major purpose of the study was to compare performance of second language learners with that of the native speakers in Smith's study, her scoring procedure was followed as closely as possible. False starts and incomprehensible utterances were disregarded; whenever self-correction occurred, the corrected version was scored. Errors of syntax and function words were recorded for each sentence type. Lexical errors were ignored and synonyms were scored as correct. "Peripheral errors" such as repetition or misuse of a pronoun were included with "accurate repetitions" as was done by Smith.

Sentence responses could be classified into one of four categories only three of which pertained to grammatical sentences; these were (a) accurate repetitions, (b) errors of deviation (which contained syntax errors but were not meaning distorting) and (c) inadequate responses (which contained distorted sentence meaning). Ungrammatical sentences, in addition to the above categories, could be classified into the fourth category, (d) normalizations (in which ungrammatical sentences were converted into grammatically correct ones by the subjects).

Results

Accurate repetitions of grammatical sentences. The repetition scores for each group were averaged across the three A structures and the four B structures; these results, as well as those reported by Smith, are presented in Figure 1. The data suggest that while a pronounced difference was present

---

Insert Figure 1 about here

---

between A and B structures for the younger subjects, there was no such difference for the adults, and only a moderate difference for the intermediate group.

Repetition scores for the seven structure types across the three groups are presented in Table 2. These data were subjected to a two-factor analysis

---

Insert Table 2 about here

---

of variance (three groups x seven sentence types). This revealed significant differences among groups, F (2, 57) = 31.3, $p < .001$, structures, F (6, 342) = 21.0, $p < .001$, as well as a significant groups x structures interaction, F (12, 342) = 4.3, $p < .01$. Planned orthogonal comparisons between A and B structures revealed a significant difference between structure types 1, 2, and 3 vs. 4, 5, 6, and 7, F (1, 57) = 13.4, $p < .001$. The important comparison of the A vs. B x groups interaction was significant, F (2, 57) = 9.8, $p < .001$ indicating that the relationship presented in Figure 1 is non-chance.

In general, the pattern of results was consistent with that of Smith, although some differences can be observed. A comparison of the negative wh-question structure with the other three B structures indicated a nonsignificant difference, F (1, 57) = 3.2, $p > .05$, suggesting that the classification of this structure as type B was justified. It should be noted, that one B structure, double adjective, did not reflect the difficulty of imitation that was found in the Smith study. It should also be pointed out that the subjects in Smith's study were appreciably better at imitation than those in our study. This could be the result of a greater level of proficiency for even very young native speakers than our L2 subjects, or it may simply reflect the greater length of the material used in the present study.

Normalization of ungrammatical sentences. The proportions of normalizations for the three groups for the seven structure types are presented in Table 3. Analysis of variance revealed that the three groups did not differ

---

Insert Table 3 about here

---

significantly from each other, F (2, 57) = 3.2, $p > .05$, but that the comparison of A vs. B structures was significant, F (1, 57) = 88.2, $p < .001$. The A vs. B by groups interaction was significant, F (2, 57) = 4.1, $p < .025$ but as can be seen from Table 3, the relationship was not the same as for the accurate repetition data. In this case, the difference between A and B structures did not decrease with age, but rather increased. The interaction was such that normalizations of A structures increased as a function of age, but that normalization of B structures was constant across the three groups. Overall, however, significantly fewer normalizations occurred with B structures than with A structures.

The pattern of results for accurate repetitions of ungrammatical sentences was exactly the same as for grammatical sentences.

Discussion

The results of the present study can be summarized as follows: (1) Smith's (1973) empirical distinction between A and B structures has been extended to L2 learners of English and (2) the distinction was not maintained for older L2 learners. That is, although the pattern of imitation difficulty of our youngest subjects paralleled that of four-year-old native speakers, the older subjects did not seem to experience any more difficulty in repeating B structures than they did A structures.

In order to evaluate these results, some theoretical explanations for differences between the two classes of stimulus sentences must be considered. Smith suggested dividing repetition factors into "mechanical", grammatical, and notional. As a grammatical factor, she considered the possibility that the transformational histories of the sentences could account for differences among A and B structures. However, since she noted that some of the sentences in both categories had equally complex histories, it was concluded that there seemed to be no relationship between the degree of difficulty of sentence repetition and the number or type of transformations required to generate the surface structures of the sentences.

As a "mechanical" factor in sentence repetition Smith introduced a variable she labeled "compression". This refers to "the way semantic information occurs in the sentence". Sentences in which the "amount of information" is evenly distributed across the NP and VP are said to have low compression while those in which information tends to be concentrated within a NP or VP are said to be of high compression. An example of a low compression sentence was given as "Two of the marbles rolled away". Information carrying units were identified as "two", "of the", "marbles" and "rolled away", and these are said to be evenly distributed throughout the major components of the sentence. On the other hand, a high compression sentence was given as "The old green coat has holes". In this case, there are said to be more "high content" words concentrated in the NP, that is, the information-carrying elements "old", "green" and "coat" are "bunched together" in one part of the sentence. Thus, Smith attributed greater difficulty of sentence imitation to greater amounts of compression of information units in the sentences (p. 517).

We feel that there are a number of limitations to the compression hypothesis. For example, it is difficult to determine a precise meaning for the term "semantic information" as used by Smith. In conventional information theory (Cherry, 1966), the information value of a semantic unit is considered to vary inversely with its probability of occurrence. From this standpoint, the equivalence of such units as "two" and "of the" is questionable since the probability of occurrence of the latter seems to be considerably higher. Moreover, the compression interpretation seems to be dependent on how the sentence is parsed. An alternative method might parse the NP of the first sentence above as "Two of the marble + PLU", in which case the sentence could be said to have as many high-content elements as the NP of the "high compression" sentence.

Another argument which seems to limit the compression hypothesis involves one type of sentence included in our study which was not included in Smith's. This was the negative wh-question (e.g., "Why isn't the boy on the airplane?"). Such sentences would appear to be of relatively low compression, that is, with information of the sentences evenly distributed throughout the surface structure. Nevertheless, young subjects in our study found this structure extremely difficult to repeat correctly. Finally, it is difficult to see how information-carrying elements in other types of B structures used in Smith's study can be considered to be more compressed than in some of the A structures. For example, the distribution of information or content in both "Susie likes to ride in the bus" and "Daddy may have missed the train" must be considered nearly identical, since in both sentences the subject NP consists of a proper noun while the rest of the content is carried by the VP. Thus, while both of these sentences have equal compression, one is an A structure while the other is a B structure.

A further qualification on the compression hypothesis has come from another elicited imitation study by Smith (1970). In this case, she orthogonally varied the degree of compression (two high-content word phrases vs. three high-content word phrases), and type of phrase structure (nominal vs. adjectival phrases). It was found that while higher compression was associated with greater repetition difficulty in noun phrases, this effect was much reduced with adjective phrases. This interaction between degree of compression and structure type suggests that further work needs to be done to ascertain the relationship of the compression of "high-content" words to other types of sentence structures.

If compression does not adequately account for the differences in difficulty of repetition of the A and B structures by young subjects, what other factor could be used to explain the difference? We suspect that compression is, at best, one of many factors which contributes to imitation difficulty. That is, it is likely that there is no single underlying explanation for the differences between sentence types which are easy to repeat and those which are not. Although this observation is not particularly surprising, it does prompt a search for other sources of repetition difficulty. For example, although underlying sentence complexity may not account entirely for the differences in A and B structures, it cannot be ruled out as a possible source of imitation difficulty. Savin and Perchonock (1965) have attributed differences in memory performance for different sentence structure types to the degree of complexity in the grammatical transformations of the sentences. They found, for example, very poor memory performance associated with wh-question sentences. The error of repetition in this case typically involves, not the simple deletion of words in the string, but rather the failure to

correctly permute the word order ("Why the boy isn't on the airplane"). Thus, difficulty appears to be syntactic in nature, rather than semantic or "mechanical". Finally, the factor of the rhythm of a given sentence structure should be given some consideration. It is now recognized that rhythm is an important element in sentence perception (Dooling, 1974), and it is likely that differences in grammatical structure, as varied in the present study, are associated with different rhythm patterns. The effects of such a variable on sentence repeatability remain an intriguing possibility for further empirical investigation.

Group Differences

In general, there was a substantial difference across groups in the ability to repeat sentences (as indicated by the significant groups main effect); this may easily be attributed to developmental changes in a number of non-linguistic factors such as memory span, attention or motivation. However, the significant interaction between groups and structure types suggests the presence of some factor which is specific to the repeatability of different types of sentence structures. There remains the possibility that the age variable is confounded with amount of previous experience with English. If so, this would be expected to affect the overall imitation ability of older subjects, but there is no reason that such previous experience should differentially favor the type B structures. That is, the relative differences between A and B structures could be expected to be maintained even for adults with greater English proficiency. It is unlikely that the adult L2 learners in our study were at more than a relatively low level of overall English ability. Their performance on the A structures was even lower than that of the four-year-old native speakers. Thus, it seems that even though

the adults were in an early stage of L2 learning, they still did not experience the relative difficulty with B structures compared to younger native speakers or L2 learners. This suggests the presence of some, as yet unexplained, developmental variable in sentence repetition ability and by implication, some difference in underlying linguistic ability.

Whatever the underlying reasons for differences between A and B structures, the prediction with respect to Dulay and Burt's (1972) hypothesis of the equivalence of L1 and L2 language learning processes for young children has been given some additional empirical support. Of course, the high correspondence between L1 and L2 performance does not necessarily mean that identical processes underlie the behaviors observed. Moreover, the considerable differences in the abilities of children and adult L2 learners in repetition abilities across the seven sentence types suggest that some genuine developmental variable is present. The hypothesis that older L2 learners use the same language-learning processes as younger language learners requires considerably more research.

Although the pattern of imitation difficulty in our youngest L2 learners was remarkedly similar to that of Smith's native speakers, one notable exception to this was their performance on the double adjective structure, where a particularly high proportion of the sentences were repeated successfully. Again, the explanation for this discrepancy is not readily available since a single theoretical explanation of imitation difficulty remains elusive. Smith makes the following comment on the inability of her subjects to repeat the adjective structure:

> The children's responses suggested that the density of the adjectives caused difficulty but not the adjective structure (they frequently left out one of the two adjectives). We might say, then, that the adjective sentences were difficult for mechanical rather than grammatical reasons; the recursion overloaded the children's capacities in some way (p. 512).

Although the reason for the overload remains unclear, it is not unreasonable to consider that this type of difficulty would be precisely the kind which would be expected to decrease with age. Since our youngest subjects were indeed considerably older than Smith's, it could be expected that they would possess more advanced abilities on this type of overload problem and hence would have little difficulty with such a structure.

Finally, it should be pointed out that while there were no differences between A and B structures in the accuracy of repetition data of the adult subjects of the present study, there was still a large difference observed between the two classes of structure in the normalization data. Although this result is difficult to interpret, it can be speculated that adult L2 learners constitute an intermediate level of linguistic competence. That is, although they are capable of correctly repeating both A and B structures, and although their degree of "self-confidence" in the language may be sufficient for them to "correct" the ungrammatical A structures, they may still be insufficiently confident to do so with the more difficult B structures. Further investigation of the empirical relationships between elicited repetitions and normalizations seems warranted.

References

Cherry, C. On Human Communication. Cambridge: The M. I. T. Press, 1966.

Dooling, D. J. Rhythm and syntax in sentence perception. Journal of Verbal Learning and Verbal Behavior, 1974, 13, 255-264.

Dulay, H. C. & Burt, M.K. Goofing: an indicator of children's second language learning strategies. Language Learning, 1972, 22, 235-252.

Klima, E. S., & Bellugi, U. Syntactic regularities in the speech of children. In G. Ferguson and D. Slobin (Eds.), Studies of Child Language Development. New York: Holt, Rinehart & Winston, 1973, p. 333-353.

Krashen, S. D. Lateralization, language learning and the critical period: some new evidence. Language Learning, 1973, 23, 63-74.

Lenneberg, E. Biological Foundations of Language. New York: Wiley, 1967.

Miller, W., & Ervin-Tripp, S. The development of grammar in child language. In C. Ferguson, and D. Slobin (Eds.), Studies of Child Language Development. New York: Holt, Rinehart & Winston, 1973, 355-380.

Naiman, N. The use of elicited imitation in second language acquisition research. Working Papers on Bilingualism, 1974, Number 2, 1-37.

Savin, H., & Perchonock, E. Grammatical structure and the immediate recall of English sentences. Journal of Verbal Learning and Verbal Behavior, 1965, 4, 348-353.

Scott, M. S., & Tucker, G. R. Error analysis and English language strategies of Arab students. Language Learning, 1974, 24, 69-97.

Slobin, D. I., & Welsh, C. A. Elicited imitation as a research tool in developmental psycholinguistics. In C. Ferguson and D. Slobin (Eds.), Studies of Child Language Development. New York: Holt, Rinehart & Winston, 1973, 485-497.

Smith, C. Children's control of some complex noun phrases: a repetition study. Paper presented at the meeting of the International Linguistics Association, New York, 1970.

Smith, C. An experimental approach to children's linguistic competence. In G. Ferguson and D. Slobin (Eds.), Studies of Child Language Development. New York: Holt, Rinehart & Winston, 1973, 497-521.

Swain, M., Dumas, G., & Naiman, N. Alternatives to spontaneous speech: elicited translation and imitation as indicators of second language competence. Working Papers on Bilingualism, 1973, Number 3, 68-79.

Footnotes

Part of this paper was presented at the Middle East Institute of Linguistics II, Cairo, August, 1974. We would like to thank Wilga Rivers and David DeCamp for their assistance at the Institute. We would also like to thank G. Richard Tucker and Carlotta Smith for their helpful comments.

This paper is included in Working Papers on Bilingualism with the permission of the editor of Language and Speech. Requests for reprints should be sent to Joel Saegert, who is now at the University of Texas at Austin, Austin, Texas, 78712. Else Hamayan is now at McGill University.

Table 1. Examples of grammatical and ungrammatical sentences of the seven structure types used in the present study.

Area of Structural Complexity	A structures
1. Conjunction:	The man and the bird are in the forest.
	The book and the pencil is on the table.
2. Complement:	The girl likes to eat chocolate.
	The student began read the lesson.
3. Number:	One of the apples fell off the table.
	Two of the marble rolled away.
	B structures
4. Negative wh-question:	Why isn't the boy on the airplane?
	Why the young man doesn't run?
5. Relative Clause:	The man who is driving is a fireman.
	The girl is dancing is happy.
6. Verb Auxiliary:	The mouse may have eaten the cheese.
	The postman should have take the letter.
7. Adjective:	The small gray cat drank the milk.
	The woman tired old helped the man.

Table 2. Proportions of accurate repetitions of grammatical sentences for the seven structure types across the three groups.

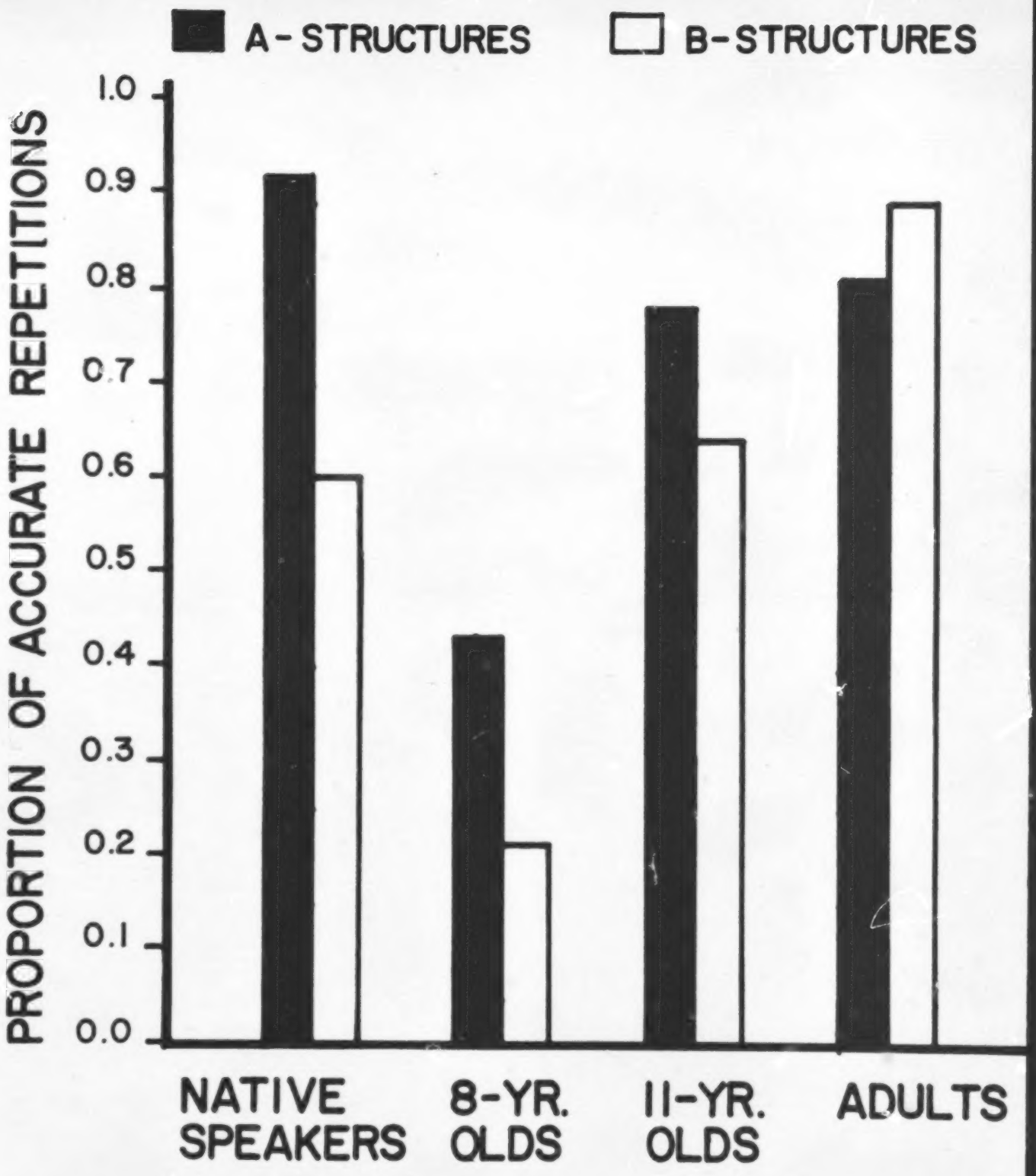
	A structures			B structures				Mean
	1. Conjunction	2. Complement	3. Number	4. Negative wh-question	5. Relative Clause	6. Verb Auxiliary	7. Adjective	
8-year-olds	.45	.43	.43	.25	.20	.03	.60	.34
11-year-olds	.93	.85	.55	.78	.53	.33	.95	.70
Adults	.93	.88	.63	.90	.88	.78	.93	.85
Mean	.77	.77	.53	.64	.53	.38	.82	

Table 3. Proportions of normalizations of ungrammatical sentences for the seven structure types across three groups.

	A structures			B structures				Mean
	1. Conjunction	2. Complement	3. Number	4. Negative wh-question	5. Relative Clause	6. Verb Auxiliary	7. Adjective	
8-year-olds	.25	.25	.18	.10	.00	.03	.15	.15
11-year-olds	.45	.55	.15	.15	.03	.05	.08	.23
Adults	.40	.60	.33	.18	.03	.03	.15	.27
Mean	.36	.47	.22	.14	.02	.03	.10	

Figure Caption

Figure 1. Proportions of accurate repetitions of A and B structures for native speakers (Smith, 1973) and three groups of L2 learners.


A-STRUCTURES
B-STRUCTURES
PROPORTION OF ACCURATE REPETITIONS
1.0
0.9
0.8
0.7
0.6
0.5
0.4
0.3
0.2
0.1
0.0
NATIVE SPEAKERS
8-YR. OLDS
11-YR. OLDS
ADULTS

END

DEPT. OF HEW

NAT'L INSTITUTE OF EDUCATION

ERIC

DATE FILMED

OCT 25 76